ONTARIO MINISTRY OF ENVIRONMENT
3693600023342

OPERATING SUMMARY

1974

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MINISTRY OF THE ENVIRONMENT
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CITY OF

CAMBRIDGE (HESPELER)

WATER POLLUTION CONTROL PLANT

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1974
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C365
1974

Cambridge (Hespeler) : water pollution control plant.
81476

Ontario

MINISTRY OF THE ENVIRONMENT

MINISTER
Honourable William G. Newman

DEPUTY MINISTER
E. Biggs

ASSISTANT DEPUTY MINISTER
REGIONAL OPERATIONS
J. Barr

REGIONAL OPERATIONS DIVISION

DIRECTOR, WEST-CENTRAL REGION
C. Macfarlane

MANAGER, UTILITY OPERATIONS
B. Hansler

CAMBRIDGE (HESPELER)

WATER POLLUTION CONTROL PLANT

MINISTRY OF THE ENVIRONMENT

1974 ANNUAL OPERATING SUMMARY

prepared by

Plant Performance Unit

TECHNICAL SERVICES BRANCH

T. Cross, Director

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CONTENTS

Title Page 1

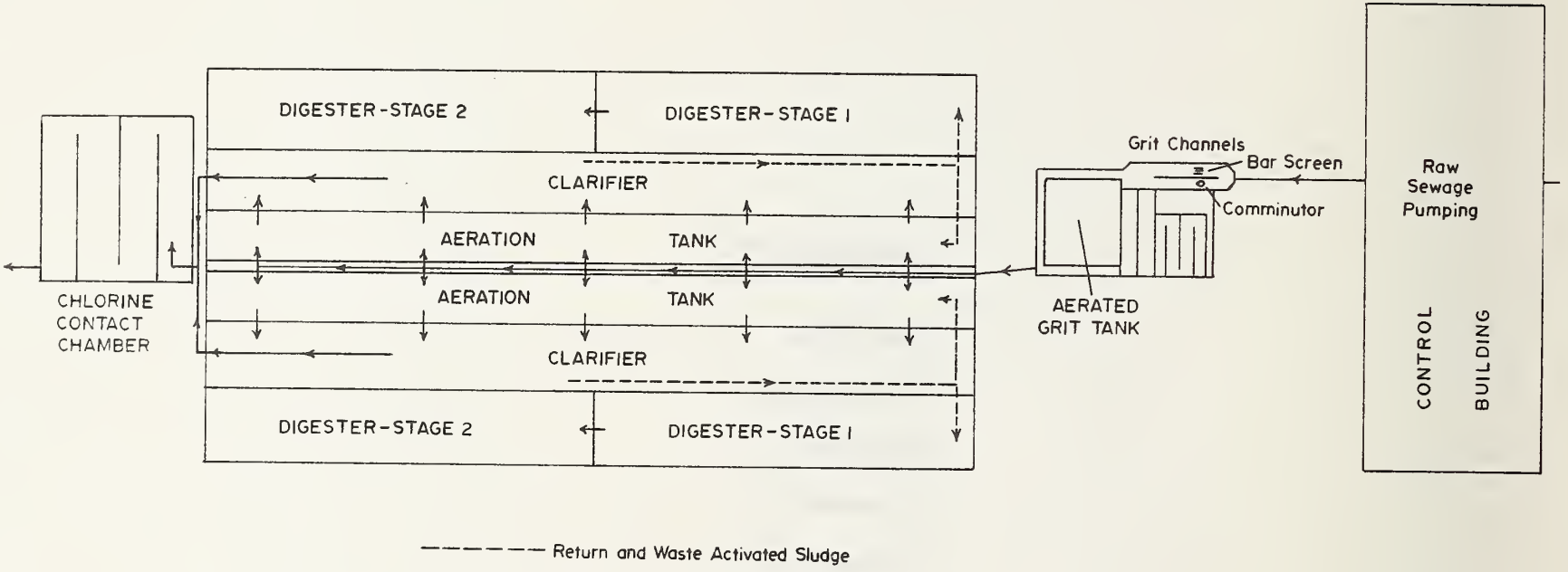
Flow Diagram 4

Design Data 5

Operating Cost 6

Process Data 8

CITY OF
CAMBRIDGE (HESPELER) WPCP



DESIGN DATA

Project:	City of Cambridge (Hespeler) WPCP
Project No:	1-0033-66
Treatment:	High Rate Activated Sludge
Design Flow:	2.05 MIGD
BOD:	Raw Sewage - 4535 lb/day
SS:	Raw Sewage - 4080 lb/day

PRETREATMENT

Raw Sewage Pumps:
One: Crane Deming Size: 400 USGPM
Three: Crane Deming Size: 300 USGPM

Comminutor:
Type: CORD 16B

Air Degritter:
Size: 11.75' x 14' x 8' swd
Volume: 8200 I. Gal. Retention: 5.8 min.
Mechanism: CHICAGO PUMP

BIOLOGICAL TREATMENT

Aeration Tanks:
Two, 150' x 7.25' x 13.5' (avg)
Volume: 183,000 I. Gal. Retention: 2.1 Hours

Clarifiers:
Two, 150' x 12.25' x 12.0' awl
Volume: 206,000 I. Gal.
Retention: 2.4 hours
Overflow rate: 545 gpd/sq.ft.

Aerobic Digesters - Stage 1:
Size: Two, 74.5' x 14.75' x 13.5' awl
Volume: 250,000 I. Gal.

Aerobic Digesters - Stage 2:
Size: Two, 74.5' x 14.75' x 13.5' awl
Volume: 250,000 I. Gal.

Blowers: Type: Three SUTORBILT 3100
Size: 3550 cfm. 150 HP Motors.

Sludge Pump: Type: MEYERS 40 MPD
Size: 7½ HP

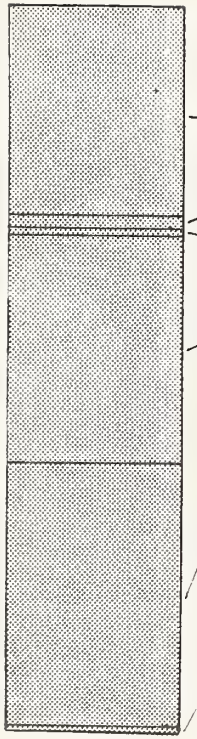
CHLORINATION

Chlorine Contact Chamber:
30' x 28' x 9' (4-pass)
Volume: 47,000 I. Gal.
Retention: 33 min.

Chlorinator:
Type: W & T A811
Capacity: 500 lb/day

ANNUAL COSTS

1974 OPERATING COSTS



SALARIES & WAGES	27%
EMPLOYEE BENEFITS	2%
TRANSPORTATION & COMMUNICATIONS	1%
SERVICES	32%
SUPPLIES & EQUIPMENT	37%
AQUISITION/CONSTRUCTION OF PHYSICAL ASSETS	0
TRANSFER PAYMENTS	0
OTHER TRANSACTIONS	1%

YEARLY OPERATING COSTS

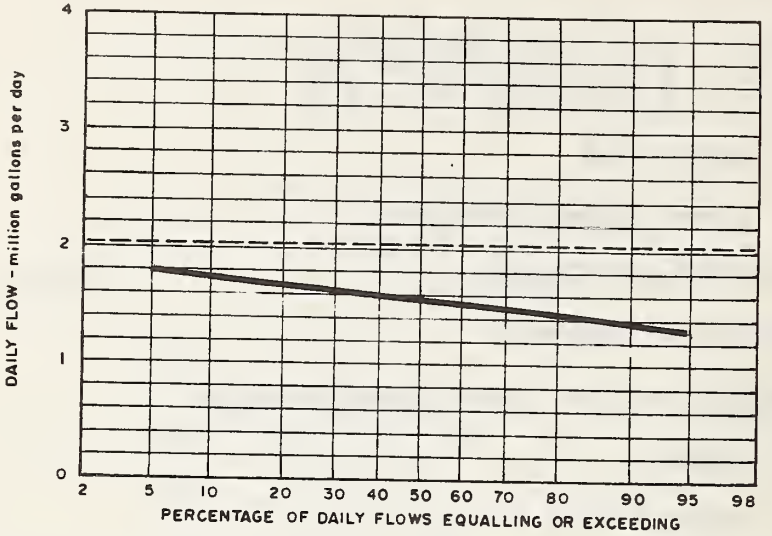
YEAR	SEWAGE TREATED in million gallons	TOTAL OPERATING COSTS	UNIT COSTS $/M.G.	UNIT COSTS ¢/lb BOD
1974	574	97386	170	7

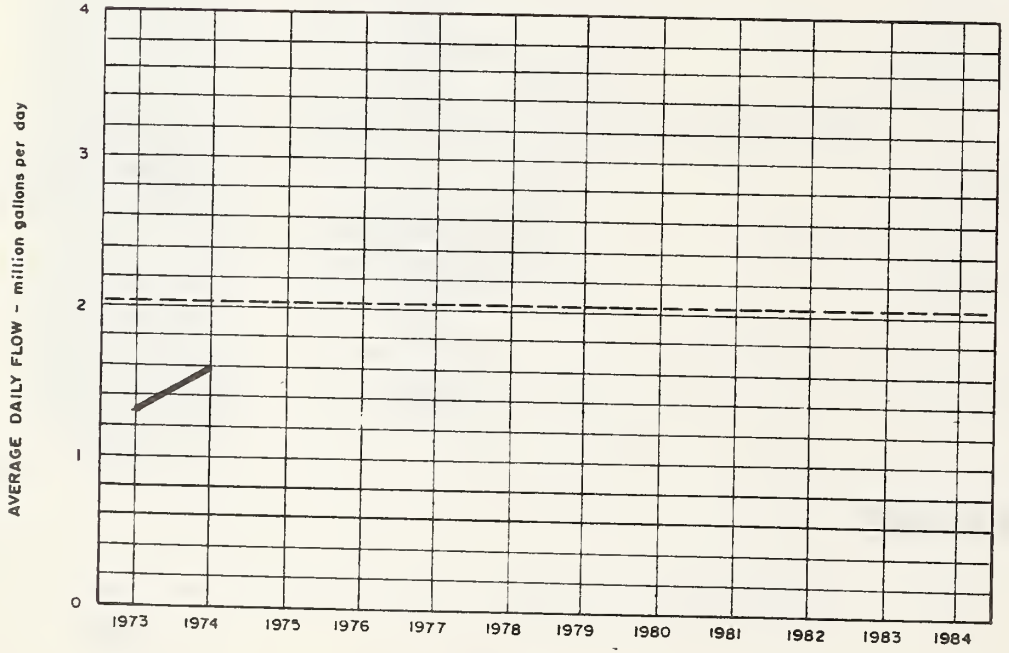
OPERATING EXPENDITURES

Regular Staff	$ 24068	$
Casual (Unclassified) Staff	1922	
TOTAL SALARIES AND WAGES		25990
TOTAL EMPLOYEE BENEFITS		1752
TOTAL TRANSPORTATION AND COMMUNICATIONS		1342
Insurance	599	
Sludge Haulage	22180	
Repairs and Maintenance	4311	
Other Services	3964	
TOTAL SERVICES		31054
Machinery and Equipment	9171	
Chemicals	9015	
Utilities	15058	
Other Supplies and Equipment	2454	
TOTAL SUPPLIES AND EQUIPMENT		35698
TOTAL AQUISITION/CONSTRUCTION OF PHYSICAL ASSETS		
TOTAL TRANSFER PAYMENTS		
OTHER TRANSACTIONS		1550
GRAND TOTAL	GRAND TOTAL	$ 97386

PROCESS DATA

FLOWS



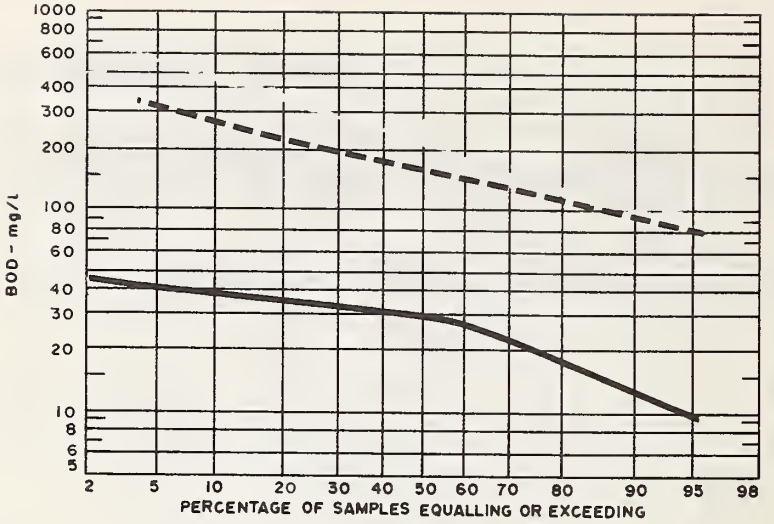


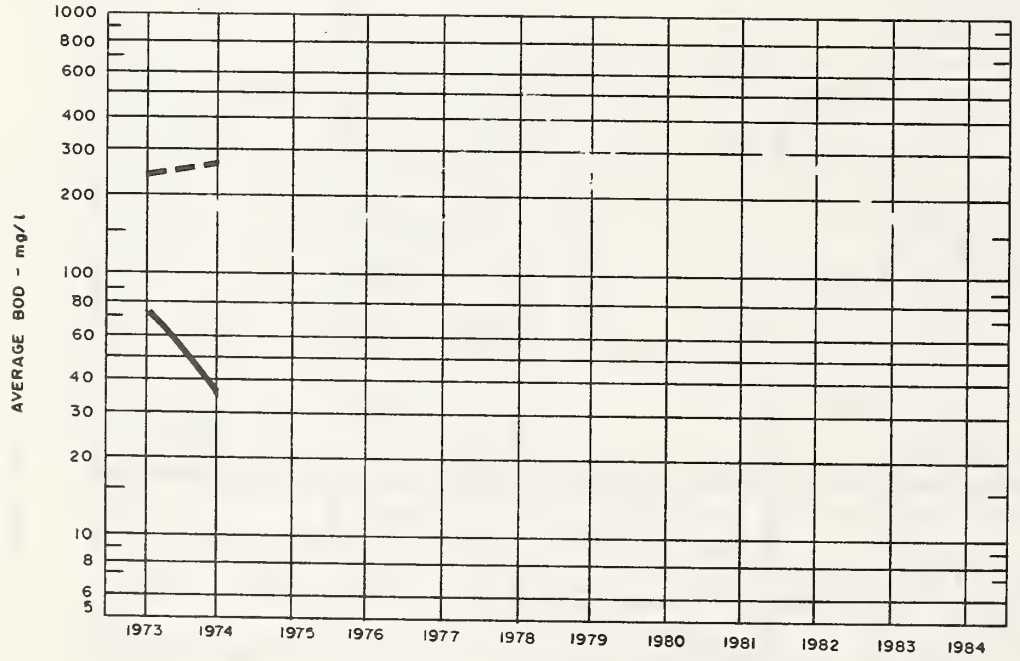
DESIGN CAPACITY – – – – – – – –

PLANT PERFORMANCE

MONTH	FLOWS			BIOCHEMICAL OXYGEN DEMAND				SUSPENDED SOLIDS				PHOSPHORUS	
	TOTAL FLOW	AVERAGE DAY	MAXIMUM DAY	INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT	REDUCTION		INFLUENT	EFFLUENT
						%	10^3 pounds			%	10^3 pounds		
	million gallons	mil. gal	mgd	mg/l	mg/l			mg/l	mg/l			mg/l P	mg/l P
JAN	46.0	1.5	1.9	197	29	85	77	156	42	73	52	4.6	2.6
FEB	41.4	1.5	1.8	316	32	90	116	163	36	78	52	12.2	1.7
MAR	48.0	1.6	1.7	307	42	86	127	122	30	75	44	9.5	2.3
APR	51.4	1.7	2.1					119	28	76	47	6.8	1.2
MAY	51.4	1.7	2.4	193	37	81	80	123	39	68	43	2.9	.3
JUNE	45.2	1.5	1.8	312	40	87	123	122	35	71	39	3.5	.6
JULY	47.2	1.5	1.8	311	36	88	130	104	22	79	39	3.2	.4
AUG	49.1	1.6	1.7	334	29	91	150	302	19	94	139	4.7	.7
SEPT	48.2	1.7	1.8	264	24	91	116	153	17	89	65	6.4	.7
OCT	49.5	1.6	1.8	252	15	94	117	136	17	88	59	5.0	.7
NOV	48.8	1.6	2.1	272	18	93	124	166	31	81	66	4.6	1.2
DEC	48.2	1.5	1.7	269	24	91	118	155	32	79	59	4.2	1.0
TOTAL	574.4	-	-	-	-	-		-	-	-	666	-	-
AVG.	47.9	1.6	MAXIMUM 2.4	272	34	88	124	147	31	79	56	5.5	1.1
No. of Samples	-	-	-	69	69	-	-	94	93	-	-	80	7.8

BIOCHEMICAL OXYGEN DEMAND

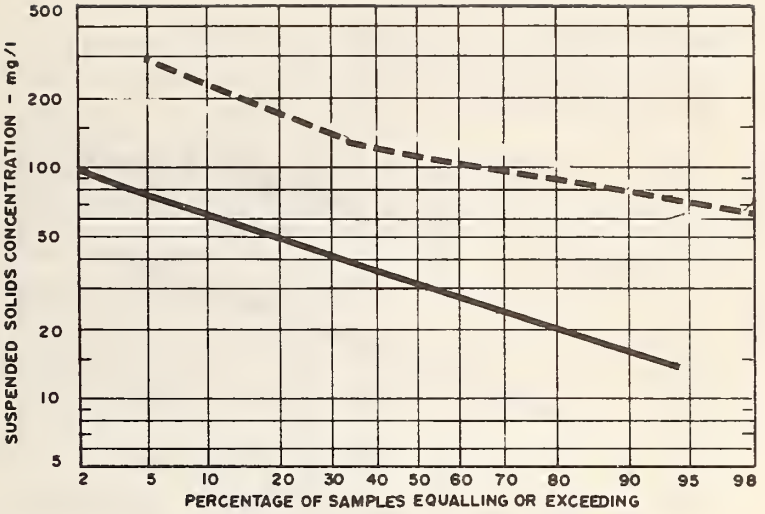


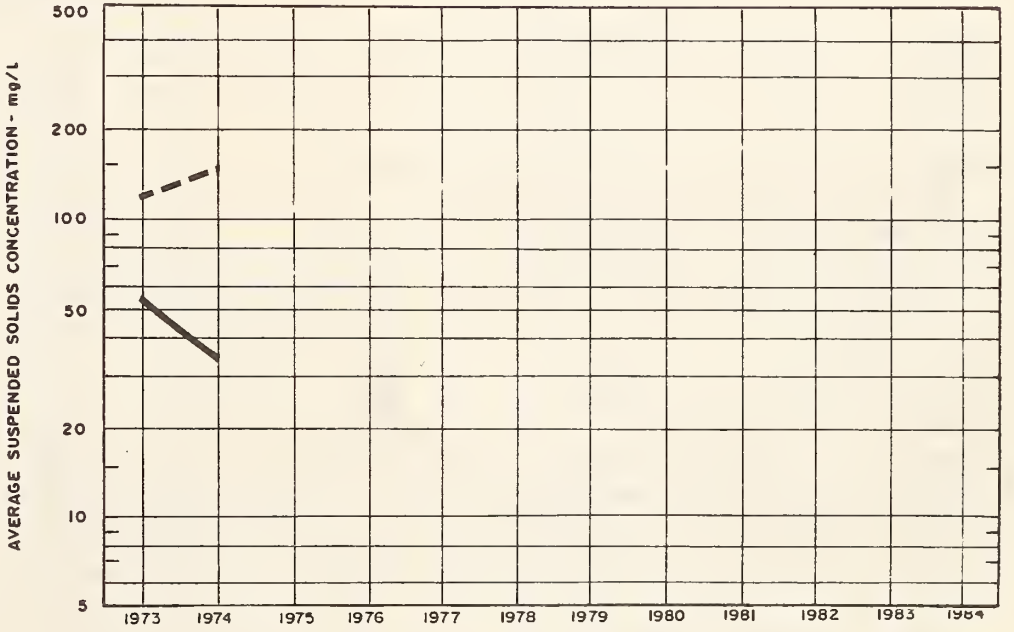


PLANT INFLUENT

PLANT EFFLUENT

SUSPENDED SOLIDS

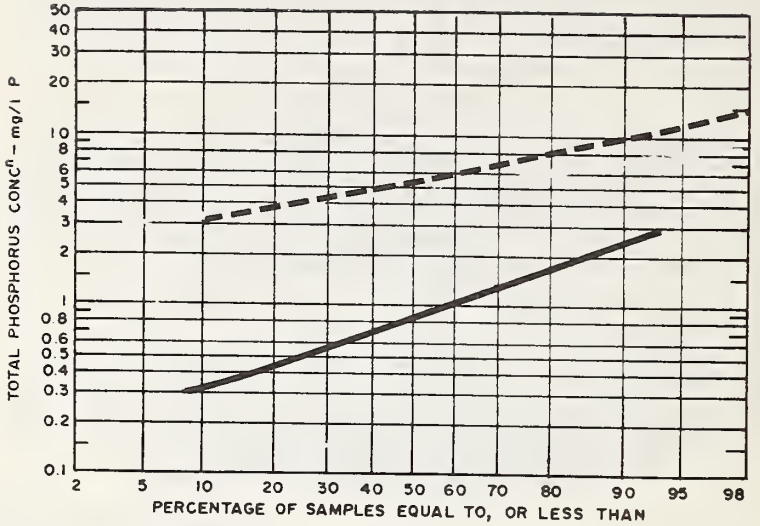


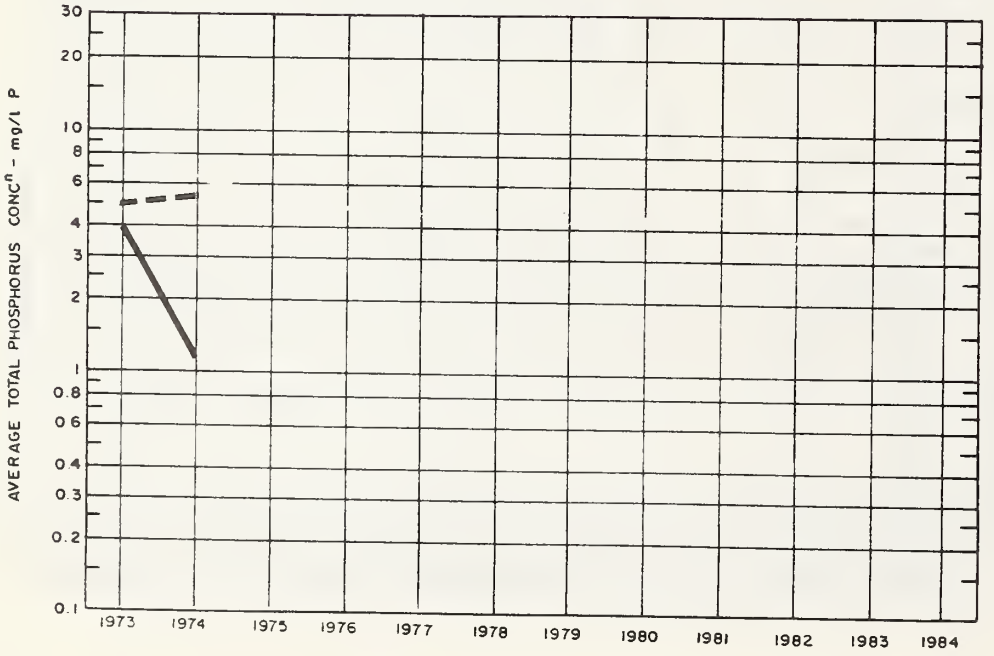


PLANT INFLUENT

PLANT EFFLUENT

PHOSPHORUS





PLANT INFLUENT

PLANT EFFLUENT

TREATMENT DATA

MONTH	GRIT	CHLORINATION		AERATION			WASTE SLUDGE			AEROBIC DIGESTER			
	QUANTITY REMOVED cubic feet	Cl_2 USED 10^3 pounds	AVG. DOSAGE mg/l	MLSS CONC mg/l	F/M day^{-1}	AIR USED 1000 ft / lb BOD	QUANTITY 10^5 gallons	SUSPENDED SOLIDS mg/l	VOL. SOLIDS %	QUANTITY REMOVED 10^5 gallons	SUSPENDED SOLIDS mg/l	VOL. SOLIDS %	AMOUNT HAULED cubic yards
JAN	31	1.9	4.2	2200	.49			6600		1.12	16000	71	665
FEB	30	1.0	2.3	2900	.59			7700		2.98	13000		1770
MAR	16	1.2	2.5	3900	.47			11200		5.21			3092
APR	26	1.1	2.1	4100				10500		2.40			1425
MAY	23	1.2	2.4	2900	.41			9000		2.28			1353
JUNE	12	1.1	2.4	2200	.80			11000		2.11			1245
JULY	32	1.9	3.9	1800	.96			13000		0.30			180
AUG	46	1.1	2.1	1700	1.16			12000		0.36			216
SEPT	55	.7	1.4	2000	.84			8000					
OCT.	52	.9	1.8	2200	.68			7000		0.69			408
NOV	42	1.1	2.3	5000	.31			8000		1.96			1164
DEC	31	1.0	2.0	2500	.63			6500		3.27	19000		1944
TOTAL	396	14.2	–	–	–	–		–	–	22.68	–	–	13462
AVG.	.7 cu. ft/mil gal	1.2	2.5	2900	.67			9200			16000		

Date Due

ONTARIO. MINISTRY OF THE ENVIRONMENT.

CAMBRIDGE (HESPELER) WATER POLLUTION CONTROL PLANT.
ANNUAL OPERATING SUMMARY.
1974 TD227/C363/H47/W38/MOE

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